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ABSTRACT

This self-paced student training module on personal safety is one of a number of modules developed for Pre-apprenticeship Phase 1 Training. Purpose of the module is to teach students types of safety equipment to wear in order to protect themselves against common job site injuries, including head, eye, hearing, respiratory, and hand and foot protection. Equipment limitations are also covered. The module may contain some or all of the following: a cover sheet listing module title, goal, and performance indicator; study guide/checklist with directions for module completion; introduction; information sheets providing information and graphics covering the module topic(s); self-assessment; self-assessment answers; post assessment; and post-assessment answers. (YLB)

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ED217270

INDIVIDUALIZED LEARNING SYSTEMS

# PRE-APPRENTICESHIP PHASE 1 TRAINING

OCCUPATIONAL SAFETY

PERSONAL SAFETY

CE032906

## Goal:

The student will know the types of safety equipment to wear in order to protect him or herself against common job site injuries, including head protection, eye protection, hearing protection, respiratory protection, hand and foot protection. Equipment limitations are covered.

## Performance Indicators:

The student will successfully complete a Post Assessment exam, testing those concepts presented in the module, as well as completing one of three assignments.

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# Study Guide

This module, "Occpuational Safety - Personal Safety," is designed to acquaint the student with many of the areas of safety concern regarding the personal protection he or she can wear to prevent or minimize injury.

Included are sections on safety consciousness and actions, head, eyes and face protection, protection of hearing and the respiratory system, and protecting the hands and feet.

1. Acquaint yourself with objectives on the cover of this module.

2. Study the Information section.

3. Take the Self Assessment.

4. Take the Post Assessment.

# Information

SAFETY CONSCIOUSNESS means being aware of good safety practices and using them to guide your activities. Ignorance is just the opposite. Here are some ways to develop or improve safety consciousness:

- Learn the safety rules and regulations that apply to your activities.
- Learn the correct uses of tools and materials.
- Obey safety rules; don't "think" they are for someone else and not you. Follow them all the time, not just when the foreman is watching.
- Learn how to protect yourself and others working around you.
- Be positive toward safety. Want to be a safe worker.

SAFETY ACTIONS show that you have a safety consciousness and are putting it to use. Here are some safety rules that apply to your activities:

- Never horseplay, shove, push, or play jokes on others when on a job site or in a shop. Never try to scare another worker.
- Never throw things on a job site or in a shop.
- Dress appropriately.
- Keep your full attention on your work. Do not daydream or allow yourself to be distracted.
- When working above other workers be especially careful handling tools and materials so there is no chance of dropping them on another worker.
- Notify co-workers if they are doing something unsafe. You <u>owe</u> it to them. If they continue the unsafe activity, notify the foreman. You owe it to yourself, the unsafe worker, the foreman, and everyone involved with the project.

PROTECTING THE HEAD

Proper head protection must be worn by <u>all people</u> and at all times while on the construction site to prevent head injuries. This rule usually refers to wearing a hard hat. There were 130,000 head injuries in 1976 related to work in the United States. Oftentimes new employees complain because the hard hat seems heavy, too

hot, or gives them a headache. If analyzed, however, hard hats just take proper adjustment and getting used to.

Hard hats are generally designed to be resistant to impact, fire, moisture and the flow of electricity. They should be kept clean, with the liners adjusted properly, and should be replaced when they become brittle. They are designed to protect you, if you wear them properly.

PROTECTING THE EYES AND FACE

Proper eye protection must be worn at all times by everyone on the job site. There are over 1,000 eye injuries to workers each day, 350 of which are disabling. Most of these could be prevented by wearing eye protection. Even though you may be doing something completely safe and feel you don't need eye protection, other workers may be doing something that will cause hazards to fly toward you.

Eye protection is available in a number of designs--safety glasses, goggles, masks, goggles with vented frames, shields, prescription or specialty shaded lenses. Wear the design that is appropriate for the job you're performing. Wear a face shield if the use of harsh chemicals is part of the job. Protecting your eyes is fine, but not protecting your entire face from acids or dangerous liquids or gases can cause serious injury.

Face protection must be worn when performing any job where there is or may be a face injury hazard. Safety glasses must be worn under face shields. Choose the correct face protection.

PROTECTING THE HEARING

Proper hearing protection must be worn whenever it is not possible to reduce the noise level or time exposed, to protect and preserve hearing ability. Usually ear plugs, muffs, or molded inserts are used, depending on the noise level, working conditions, and employee comfort. Personal hearing protectors usually reduce noise by anywhere from 25 to 30 decibels.

As with all types of safety equipment and clothing, choose that hearing protection which is best suited for the type of noise around you. Ear inserts, for example, are better for lowering high-frequency noise than are ear muffs, which reduce low frequency noise. In certain job situations muffs may be too cumbersome and interfere

with worker concentration. Analyze the factors and choose the best fitting, most comfortable, most protective type available. They don't work unless you wear them.

PROTECTING YOUR LUNGS

Proper respiration (breathing) protection must be used anytime there is or may be a breathing hazard present. There are several kinds of respiration protection available depending on the type of hazard. All respirators must meet the United States Bureau of Mines Standards. Check the label before you buy or use one.

Mechanical filter types protect against non-toxic nuisance dust, such as sawdust and pollen.

Chemical-cartridge types protect against low-concentration of some vapors and gases.

Gas masks protect against organic vapors, acid gases, chlorine, ammonia, carbon monoxide, and combinations of toxic gases for a limited time.

Supplied - air respirators protect against high concentrations of dangerous gases, vapors, fumes, dusts, and mists.

Self-contained breathing apparatus protects against high concentrations of gases, vapors, mists, dusts, and fumes.

Air line respirators protect against high concentrations of dusts, fumes, and mists, and low concentrations of gases and fumes.

All but the first of these breathing aids require some degree of training before being used. Many of them require hoses and tanks, or are good for only a short period of time. If improperly used, the person using several of these devices could run out of oxygen or use an improper cartridge. Carbon monoxide build-up is a possibility if used incorrectly. The worker should be aware of the advantages and disadvantages of all types of filters or respirators and select the proper one for each job.

PROTECTING THE HANDS

Proper hand and finger protection must be worn anytime there is a hand injury hazard present. There was an average of over 1,300 disabling hand and finger injuries every day in 1976 work accidents in the United States. There are gloves available for every type of condition or hazard present at any job site:

Abestos gloves protect against thermal burns, hot or cold.

Metal mesh gloves protect against cuts and sharp objects.

Rubber gloves protect against electrical burns, and shocks, and chemical burns and irritations.

Neoprene and vinyl gloves protect against chemical irritations and burns.

Leather or cowhide gloves protect against rough objects, moderate heat and sparks.

Fabric gloves protect against dirt, some abrasions and slivers.

Coated fabrics protect against chemicals and moist materials.

In addition to gloves, creams can be used to protect the skin from chapping and certain skin diseases. Common sense is the order in hand protection. Improper fitting or bulky gloves can get caught in machinery, dirty gloves can become bulky and unsafe, gloves with holes can allow the penetration of dangerous liquids or slivers.

PROTECTING THE FEET

Proper foot protection must be worn at all times on the construction site. There are over 200,000 disabling foot and toe injuries per year costing over $150 million. Before chosing a shoe, examine the job site activities and requirements to determine the best types.

Shoes and boots should be of leather--never canvas-- and provide proper sole, ankle and lower leg protection. Steel-toes boots can withstand a static load of over a ton. Boots and shoes should be kept clean and waterproof.

# Assignment

You are required, as part of this module, to complete any one of the following assignments and turn it in to your instructor.

1. Describe to your instructor the proper methods of cleaning and maintaining your personal safety equipment.

2. Research and write a short report on the various forms of hearing protection, discussing the advantages, disadvantages and characteristics of all.

3. Show examples of and demonstrate to your instructor your knowledge of the protective characteristics of the following types of gloves:

   asbestos
   neoprene
   rubber
   leather
   coated fabric
   fabric

# Self Assessment

List 3 things you should remember about caring for and wearing hard hats.

1.

2.

3.

Multiple choice: Complete the following by circling the letter of the best response.

4. To be most effective, safety glasses should:
   a. be made with safety lenses
   b. have side shields
   c. fit properly
   d. all of the above

5. Face protection must be worn:
   a. to prevent eye injury
   b. to prevent respiration injury
   c. to prevent facial burns
   d. both a and c

6. A disadvantage of wearing hearing protection is:
   a. they are often too light
   b. they decrease work fatigue
   c. they must be worn to protect hearing
   d. they may be difficult to get used to

7. Proper respiration protection will:
   a. help prevent passing out
   b. help prevent dust from entering the body
   c. help prevent gases from entering the body
   d. all of the above

# Self Assessment Answers

1. Should be clean
2. Liner should be adjusted properly
3. Replace if becomes brittle

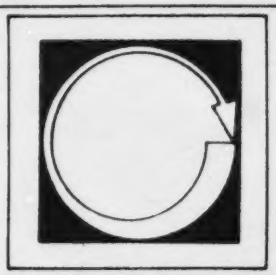
4. d

5. d

6. d

7. d

# Post Assessment



Choose the answer which best completes the statement and write the letter of that answer in the blank space to the left of the statement.

1. ____ Which of the following is an example of a safety action?
   a. being positive toward safety
   b. dressing appropriately
   c. learning safety rules
   d. obeying safety rules

2. ____ Approximately how many head injuries were there in the U.S. in 1976?
   a. 130,000
   b. 1,300
   c. several million
   d. 350,000

3. ____ After several years of wear, some hard hats become:
   a. soft
   b. spongy
   c. brittle
   d. springy

4. ____ If you're working over or near harsh chemicals, which of the following would provide the best protection?
   a. shield
   b. goggles or safety glasses
   c. tinted lenses
   d. safety glasses and a shield

5. ____ Noise is measured in:
   a. kilowatts per hour
   b. wavelengths per second
   c. the numver of times the eardrums beat
   d. decibels

6. ____ In general, which hearing protection best reduces high-frequency noise?
   a. muffs
   b. ear inserts
   c. a hood
   d. a hood with an asbestos lining

7. ____ If you have to work in an area where carbon monoxide is present, which of the following would offer the best protection?
   a. gas mask
   b. mechanical filter
   c. inhaling a chemical cartridge
   d. a hood

8. ____ Which of the following affords the best protection against low concentrations of gases and fumes?
   a. air-line respirator
   b. combination mechanical filter-gas mask
   c. supplied-air respirator
   d. carbon monoxide

9. ____ If you are required to carry a bucket of toxic chemicals, which of the following hand protection devices would afford the most protection?
   a. chemical-repelling salve or cream
   b. thick cowhide gloves
   c. vinyl gloves
   d. metal mesh gloves soaked in formaldehyde

10. ____ Shoes or boots worn on a construction site should protect the:

a. ankle and knee

b. ankle to the knee

c. sole, ankle, toes, lower leg

d. sole, shin, toes

# Instructor Post Assessment Answers

1. d
2. a
3. c
4. d
5. d
6. b
7. a
8. c
9. c
10. c